

Application/Control Number : 09/775,492
Art Unit: 2634
April 3, 2006
Page 3

Amendments to the claims

1.(Currently amended) A method for converting a real signal into a complex signal inherently in quadrature, comprising the step of:

adding to a real signal designed to be converted into a complex signal a signal whose frequency is four times the band-center frequency of said real signal to be converted, in order to obtain an inherent quadrature.

2.(Original) The method according to claim 1, further comprising the steps of:

after said adding step from which a sum signal is obtained, selecting, from said sum signal, a first component and a second component which are in phase and in quadrature;

removing components below a given level from said first and second components in phase and in quadrature, in order to obtain a first and a second signal component at DC zero level;

multiplying said DC zero level components respectively by 1 and -1, with a frequency equal to the center frequency of said signal to be converted in input.

3.(Original) The method according to claim 2, wherein said selection step is performed by selection means, which send signals to said threshold circuits with a frequency which is twice said band-center frequency of the signal to be converted.

4.(Previously presented) The method according to claim 3, wherein said selection means comprise at least one selector and an oscillator adapted to generate a square-wave signal whose frequency is equal to twice the band-center frequency of said signal to be converted.

5.(Previously presented) The method according to claim 4, wherein the square-wave signal generated by said oscillator included in said selector is only approximately in phase with said signal whose frequency is four times said center frequency of the signal to be converted.

6.(Previously presented) The method according to claim 5, wherein a multiplier is adapted to multiply said phase and quadrature components by a square-wave signal whose frequency is equal to said center frequency of the signal to be converted.

7.(Previously presented) The method according to claim 6, wherein said square-wave signal generated by said oscillator is sent to said multiplier and is only approximately in phase with said signal whose frequency is four times said center frequency of the signal to be converted.

8.(Original) The method according to claim 3, wherein said selection means comprise two adders adapted to add said sum signal to square-wave signals which are respectively normal and

Application/Control Number : 09/775,492
Art Unit: 2634
April 3, 2006
Page 4

inverted.

9.(Original) The method according to claim 8, wherein said selection means further comprise an additional pair of selectors adapted to add a DC offset to said signals in output from said pair of adders whereto said oscillator sends said square-wave signal whose frequency is twice said center frequency.

10.(Currently amended) A device for converting a real signal into a complex signal, comprising a first adder adapted to add a signal to be converted and a signal whose frequency is four times the center frequency of said real signal to be converted.

11.(Previously presented) The device according to claim 10, further comprising:

a selector adapted to select in-phase and quadrature components obtained from a sum signal which is provided in output by said first adder ;

threshold means adapted to remove components below a given threshold from said in-phase and quadrature components; and

a multiplier adapted to multiply by +1 and -1 output signals from said threshold means.

12.(Previously presented) The device according to claim 11, comprising an oscillator adapted to generate said signal whose frequency is four times said central frequency.

13.(Currently amended) The device according to claim 11, comprising an additional oscillator adapted to generate a square-wave signal whose frequency is twice the frequency of said center frequency, said additional oscillator sending said square-wave signal to a selector which receives said sum signal from said first adder .

14.(Previously presented) The device according to claim 12, comprising an oscillator adapted to generate a square-wave signal whose frequency is equal to said center frequency of said signal to be converted, said square-wave signal being sent into said multiplier for multiplication with said in-phase and quadrature components.

15.(Previously presented) The device according to claim 11, wherein said selector comprises a first pair of adders adapted to add to said sum signal a normal and inverted signal whose frequency is respectively twice said center frequency of said signal to be converted.

16.(Previously presented) The device according to claim 15, wherein said selector comprises a second pair of adders adapted to add a DC offset to the signals in output from said first pair of adders.